

New Species of *Tineina* from California.

BY ANNETTE F. BRAUN.

***Argyresthia trifasciae* n. sp.**

Labial palpi, face, head and thorax pale golden. Antennae whitish, with broad brown annulations. Forewings shining white with a faint yellowish tinge, and marked with pale golden as follows: An oblique basal patch, followed by two slightly oblique fasciae nearer the base on the dorsal margin, the second of which lies at the beginning of the dorsal cilia; a third perpendicular fascia, followed by a more indistinct curved golden streak in the apical portion of the wing; extreme apex and cilia golden. There are a few scattered golden scales on the costa between the fasciae. Hind wings pale yellow. Abdomen and legs golden, except the fore tarsi which are brown. Expanse, 7-7.5 mm.

The specimens from which the above description was prepared were collected at Ocean Beach, San Francisco County, May 31, 1908, by Mr. G. R. Pilate.

This species should be placed between *A. quadristrigella* Zeller and *A. thoracella* Busck, being probably more closely related to the latter. Veins 7 and 8 of the forewings are stalked.

Types in my collection.

***Argyresthia pilatella* n. sp.**

Face and head gray, front part of the tuft whitish; basal joint of antennae almost pure white, remainder annulate with black. Thorax dark gray. Forewings with the whitish somewhat shining ground color almost overlaid with brownish gray scales, arranged for the most part along the costal and dorsal margins into narrow strigulae, between which the white ground color is evident. At the middle of the dorsal margin, these scales are collected into a broad and much darker patch, which extends obliquely backward as a curved streak nearly to the costal margin where it meets the apex of a similar but much smaller and less distinct costal streak, thus forming an outwardly angulated more or less distinct fascia. Sometimes the dark scales are almost evenly distributed over the entire surface of the wing except along the costa near the apex, where the strigulae are distinct. Along the apical half of the costa, the white interspaces between the strigulae are broader; sometimes the only dark streak is a conspicuous one just before the apex. A black apical dot, sometimes obsolete. Cilia opposite the strigulae and around the apex gray becoming paler toward the tornus. Hind wings silvery gray, their cilia tinged with

brown. Abdomen and legs gray, tips of the tarsi darker. Expanse, 9.5-10.5 mm.

Nine specimens: Mills College, Cal., May 20, 1908; San Francisco, April 12, 1909; all collected by Mr. G. R. Pilate. A dark indistinctly marked species, apparently not closely related to any of the described American species. Veins 7 and 8 of the forewings are stalked.

Type in my collection; paratypes in the California Academy of Sciences and in Mr. W. D. Kearfott's collection.

***Nepticula ceanothi* n. sp.**

Palpi deep bronze; tuft reddish orange; antennae almost black; eye-caps shining yellow. Thorax and basal third of the forewings with deep purple and blue metallic reflections, becoming brilliant reddish bronze outwardly. A shining golden fascia at one-third, and a second similar one at two-thirds. Beyond the first fascia, the ground color of the wings is dull dark brown. Cilia brown, becoming iridescent gray toward their tips. Hind wings and cilia dark brownish gray. Upper surface of abdomen dark brown; lower surface of body and legs metallic gray with faint bronze reflections. Expanse, 4.5-5 mm.

Three specimens bred from upper side mines on leaves of *Ceanothus divaricatus* Nutt., collected by Mr. G. R. Pilate, at Dutch Flat, Placer Co., California. The mine is a brownish much contorted linear tract with a broad area of frass sometimes nearly as wide as the mine. The mine averages 32 mm. in length with 1 mm. for the greatest breadth. The cocoon is flattened elliptical, somewhat broader toward its anterior end, and densely woven of reddish brown silk. The mines were received in February; the imagoes emerged from the middle of March to the middle of April.

Types in my collection.

***Nepticula diffasciae* n. sp.**

Palpi shining gray, tuft reddish yellow; antennae dark gray, eye-caps shining yellowish white. Thorax and forewings lusterless black, the latter inconspicuously mottled in the apical third. There are two pale fasciae; the first at one-third is pale dull yellowish white; the second at two-thirds is almost pure white, somewhat shining, and usually considerably narrower than the first. Cilia around the apex whitish, becoming gray toward the tornus. Hindwings very pale grayish brown, with gray cilia. Abdomen toward the base concolorous with

the hindwings, shining gray behind. Underside and legs shining gray, faintly tinged with brown. Expanse, 5.5-5.8 mm.

Described from six bred specimens, Dutch Flat, Placer Co., Cal. I have, however, been unable thus far to identify the food plant, which is a shrub with lanceolate yellowish green leaves, densely tomentous beneath. The mine, which is semi-transparent, is a tortuous tract on the upper side of the leaf, with the frass deposited in separate grains throughout its entire breadth. The end of the mine, which is free from frass, is whitish and almost transparent. Cocoon ovoid, not at all flattened, and pale yellowish in color. Mines collected in the early part of March produced imagoes during May.

Types in my collection.

***Nepticula variella* n. sp.**

Palpi yellow gray; tuft yellowish orange; antennae dark gray, eye-caps pale yellow. Thorax dark fuscous. Ground color of the forewings sordid yellowish white, which is in most specimens almost entirely overlaid with fuscous scales, leaving only the apex of the wing and a more or less distinct fascia at the apical third of the pale yellow color. This is the case in about four-fifths of the specimens; in the others, the dusting of the basal two-thirds of the wing varies, in some cases being merely less dense, in others lacking toward the costal or dorsal margins, and in a single specimen entirely lacking, except for a few scattered scales. Cilia fuscous sometimes yellow around the apex. Hindwings gray, with their basal half in the male overlaid with purplish black scales. Dorsal side of the abdomen blackish, lower side and legs yellowish gray. Expanse, 5.5-7.5 mm.

Twenty-one specimens bred from winding mines on the upper side of *Quercus agrifolia* Nee., Mills College, Alameda County, Cal., and one specimen on a deciduous oak from the same locality. The mines on the latter are somewhat longer than on the thicker leaved evergreen oak. The yellowish cocoon is ovoid, not flattened, and slightly broader toward its anterior end. Mines received in January produced imagoes in the latter part of February and in March.

This species exhibits a considerably wider range of variation than is usual in the genus.

Type in my collection; paratypes in the California Academy of Sciences and in Mr. W. D. Kearfott's collection.

Nepticula punctulata n. sp.

Palpi grayish; tuft grayish yellow, antennae gray, eye-caps yellowish white. Thorax gray. Forewings shining grayish, yellowish white, with numerous fuscous scales evenly distributed over their surface, so as to give the wings a finely peppered appearance. Cilia pale gray. Hindwings and cilia pale gray, the latter tinged with yellow. Body and legs pale shining gray, faintly tinged with red. Expanse, 4.5-5.5 mm.

Two specimens bred from upper side mines on leaves of *Ceanothus cuneatus* Nutt., from Dutch Flat, Placer County, Cal. The mine, which in its early stages is not very distinctly visible on the surface of the small thick leaves, usually follows the margin of a leaf, often being bent back on itself. Toward the end it bends into the middle of the leaf, where its apex is suddenly slightly enlarged.

The cocoon is elliptical, much flattened on its lower side, reddish brown in color, with its upper convex side covered with a loose meshwork of paler strands.

The mines were received in the early part of January, the imagoes appeared February 27th. The remarkably even distribution of the dark dusting is a striking characteristic of this species.

Types in my collection.

Bucculatrix ochristrigella n. sp.

Face and head creamy white, with a few grayish brown scales in the tuft; antennae pale grayish. Thorax and forewings creamy white, the latter marked with ocherous patches and dashes as follows: a narrow streak along the basal third of the costa, which is brown at its extreme edge; a basal streak in the fold extending nearly to one-third; just within the costa, an elongate patch at one-third; opposite its end a short streak extends obliquely backward from the middle of the dorsal margin; just behind the middle of the wing, a long oblique transverse streak, broadest on the costa, extends across the wing into the cilia of the termen, where it is flecked with brown scales; a triangular spot on the costa beyond this; an oblique streak from the apex into the apical cilia, this latter and also the triangular spot being sparsely flecked with brown scales, which are continued backward to join the dusting at the end of the transverse streak. Hind wings and cilia very pale ocherous. Abdomen above dark posteriorly, lower side and legs grayish ocherous. Expanse, 11-11.5 mm.

Described from a large number of specimens collected at Mills College, Alameda County, Cal., May 11-20, 1908, by Mr. G. R. Pilate.

The ocherous markings are not always as clearly defined as indicated by the description given above; this is especially true in regard to the streak in the fold.

Type in my collection; paratypes in the California Academy of Sciences and in Mr. W. D. Kearfott's collection.

***Bucculatrix albaciliella* n. sp.**

Face and tuft white, the latter with a few ocherous scales interspersed, antennae gray. Thorax and forewings pure snowy white. Forewings marked with ocherous patches. These markings consist of a streak in the fold near the base; a spot just within the costa before the middle and a spot similarly placed at two-thirds; opposite the space between these two, a short streak in the fold. The yellow patch at two-thirds is more or less connected with an oblique transverse spot running to the termen. There are a few ocherous scales on the costa before the apex. All of these marks are often very faint. Cilia pure white. Hind wings slightly tinged with gray, their cilia white. Body grayish ocherous. Legs whitish except the anterior pair which are gray. Expanse, 7.5-8.5 mm.

Eleven specimens: Mills College, Alameda County, Cal., May 11-20, 1908. In general type of marking, it closely resembles *B. ochristrigella* Braun, but may easily be distinguished from it by the smaller size, pure white color, and the absence of the apical streak into the cilia.

Type in my collection; paratypes in the California Academy of Sciences and in Mr. W. D. Kearfott's collection.

***Bucculatrix tetrella* n. sp.**

Face and tuft creamy white, the latter with brownish yellow scales interspersed. Antennae whitish, narrowly annulate with brownish yellow. Thorax and forewings creamy white. The wings are considerably overlaid with brownish ocherous scales, arranged in rather ill-defined patches and bands. These are four in number; the first is a broad patch near the base of the dorsal margin, not attaining the costa; the second and third are oblique bands, of which the former attains the dorsal margin near the middle, the latter at the tornus; the fourth is a large patch at the apical fourth of the costa extending nearly across the wing. These patches and bands often blend into one another. The

thorax and forewings are sparsely peppered with minute brown dots. On the dorsal margin, at the internal margin of the first band is a small patch of black-tipped raised scales. There are a few black scales at the apex of the wing, and a semi-circle of brown scales in the middle of the apical cilia. Hind wings and cilia pale ochereous. Abdomen and legs pale ochereous, the latter densely dusted outwardly with dark brown scales. Expanse: 8 mm.

Eleven specimens; Mills College, Alameda County, Cal., May 20th to June 17, 1908. This species bears considerable resemblance to some of the Eastern oak-feeding species.

Co-types in the California Academy of Sciences, in Mr. Kearfott's and in my collection.

***Bucculatrix variabilis* n. sp.**

Face and head whitish, the tuft with varying proportions of gray and brown scales, so that in the darker specimens, it is better described as fuscous. Antennae white, annulate with black. Ground color of the thorax and forewings white, more or less dusted with fuscous scales, the wings toward the apex being overlaid with pale yellowish brown scales. In the dark specimens the dusting is so dense that perhaps the wings are more clearly described as fuscous with white costal and dorsal streaks. Just before the middle, is a pair of oblique white streaks meeting at an acute angle nearer the costa. At the apical third is an almost perpendicular white costal streak meeting, in the middle of the wing, the apices of two dorsal streaks, of which the anterior one is oblique pointing backward and parallel to the first dorsal streak, the posterior one oblique pointing forward from beyond the tornus. On the dorsal margin, between the first and second dorsal streaks, the dusting is very dark, almost black, forming a quadrate spot extending nearly half way across the wing. Just preceding the apex are a few white scales, sometimes forming a semi-circular streak enclosing the apex. A black apical dot and a line of dark scales in the cilia around the apex. Sometimes the white ground color predominates; in this case, the dusting below the fold is rather evenly scattered, but a little darker between the first and second white streaks; above the fold the dusting toward the base is altogether lacking; there is a dark streak of scales forming the internal border of the first white costal streak; a similar, but more scattered patch beyond this white streak. The apical part of the wing is more yellowish brown in the light form, due to the comparative absence of the dark dusting. Hind wings varying from very pale to darker gray; their cilia concolorous. Abdomen and legs gray, tarsi white at the bases. Expanse, 6.7-7.8 mm.

Described from four bred specimens and a number of captured specimens; all from Mills College, Cal., the latter were captured March 25, 1908, the bred specimens emerged from April 25th to May 12th. The food plant belongs to the *Amaranthaceae*, and is probably a species of *Cladanthrix*.

Type in my collection; paratype in the California Academy of Sciences.

***Bucculatrix transversata* n. sp.**

Face whitish, speckled with brown; tuft brown intermixed with white in front and toward the sides. Antennae grayish broadly annulate with dark brown. Thorax brown. Forewings brown, except along the costal edge and termen, where they are whitish, and dusted with dark fuscous. At the apical third, this dark dusting is a little more dense and extends a little inward onto the brown ground color. Beyond this the dusting is scattered, and just before the apex the white border is enlarged into a triangular undusted spot. On the middle of the dorsal margin is a narrow, half-crescent shaped patch of raised black scales, with one or two white scales before it, and a few scattered black scales behind it. A straight transverse streak of black scales across the apical cilia. Cilia gray. Hind wings and their cilia also gray. Abdomen shining gray, paler beneath. Legs gray, tarsi tipped with black. Expanse: 7 mm.

Described from a specimen bred on leaves of *Ambrosia psyllostachya* D. C., collected by Mr. G. R. Pilate at Rivera, Los Angeles County, Cal. The larva feeds on the upper side, consuming irregular patches. Pupation took place the latter part of October, the imago appeared December 5th.

Type in my collection.

***Gracilaria reticulata* n. sp.**

Labial palpi pale yellow with a broad brownish red band in the middle of each of the two last joints. Head yellow with a few brownish red scales. Antennae whitish, annulate with black, the annulations becoming broader toward the tip. Thorax pale yellow, patagia brownish red. Forewings pale yellow, with the costal half reticulated with brownish red. A band of this red color starts at the basal fifth of the costa and crosses the wing obliquely to the fold where it meets a similar band curving up from the base of the dorsum. The band then continues to the dorsum, where it is angulated and returns again to the fold. This band then continues in a slightly wavy outline to the apex, giving off on its dorsal side, three brownish red bars, of which the

first reaches the margin just beyond the middle, the second at the tornus, the third beyond it. The third is also produced to the costa as a much broader bar. Cilia yellowish red opposite the red streaks and bars. Hind wings and cilia pale reddish gray. Abdomen yellowish gray. Anterior legs brownish red, except the tarsi; middle and hind legs pale yellowish shaded with red, all the tarsi whitish, tipped with brown. Expanse, 14.5-15 mm.

Described from five specimens from Mills College, Cal., two of which are bred. The bred specimens emerged January 30-31, 1908; the captured specimens are dated February 9th, March 25th, June 5th, respectively. A very distinct and beautiful species.

The larva rolls under the apex of leaves of *Quercus agrifolia* Nee. The cone, which is formed of a single fold, is often remarkably perfect. Its free edges are securely spun to the under side of the leaf. I have not observed the larva during the leaf-mining period, but have noticed an untenanted mine, on the under side of a leaf, which probably belongs to this species. The cocoon is spun on the upper side of a leaf across the midrib and has numerous strands of silk stretched across above it.

Types in my collection.

***Gracilaria palustriella* n. sp.**

Labial palpi yellowish, dusted with dark brown. Head brownish, antennae whitish, annulate with brown. Thorax brownish. Forewings with the ochreous ground color for the most part overlaid with reddish brown scales, especially in the costal half. These scales are densest around the borders of the pale whitish costal spot. This spot is somewhat produced along the costa toward the apex, and has some reddish scales scattered over it and six or seven black dots on its costal edge. On its dorsal side, a pale indistinct streak curves from it to the dorsal margin, resulting in the internal edge of the spot being convex, the external edge deeply concave. Cilia yellowish, with three or four dark lines running through them from the apex to the tornus. Hind wings gray, their cilia paler and reddish. Abdomen gray. Anterior legs reddish brown, except the tarsi which are whitish, tipped with black. Middle and hind legs grayish. Expanse: 13.7 mm.

Described from a specimen bred from mines on leaves of a species of *Salix*, from Mills College, Cal.; mines collected at

the beginning of June; the imago appeared July 25th. The later larval habits are very similar to those of *G. salicifoliella* Cham. The larva enters the leaf by means of a lunate slit on the under side, and makes a large flat upper surface mine. It later deserts this mine to form a new one. At no period of its larval existence is it a leaf-roller. This sharply distinguishes it from *G. stigmatella* Fab., which the imago in many respects resembles. The larva spins an oval, flat, somewhat glaucous silk cocoon on either the upper or lower side of the leaf.

Type in my collection.

The Larva of *Eumaeus atala*.

BY JOHN L. HEALY, Chicago, Ill.

That the larva of so common a butterfly as is *E. atala* about Miami, Florida, should be overlooked is rather remarkable. On the rock ridge, some three miles wide, between Biscayne Bay and the Everglades, where the principal features of the flora are jack-pine and palmetto, this beautiful little black and orange creature is very abundant. My trip to Miami was solely on business and no time was available for strictly entomological pursuit. While on my way to the Everglades to inspect some land in the company of unscientific and unsympathetic persons, I observed such numbers of this species that I prevailed upon my companions to spend a few minutes watching me catch a few. I am always armed with a folding net and a cyanide jar. Noticing the female ovipositing on a species of fern I determined that some brightly colored larvae on the same plant were probably the larvae of *atala*. I secured two, and also three pupas, so closely resembling the larvae that no mistake could be made. Eggs, larvae, pupae and imagoes were all present in great numbers. I had no glass with which to observe the eggs, nor any proper receptacle in which to carry them, so made no detailed observations.

The mature larva is about one inch in length, robust, bright vermilion red in color; thorax much lighter, yellowish, semi-